Amendments to the Claims

Please cancel claims 1, 3-5, 10-13, 53-55, and 58-59 without prejudice, amend claim 56, and add new claims 60-73. This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1-55. (Cancelled)

56.   (Currently Amended) A method of treating a waste stream, the method comprising the steps of:

   a.   conducting at least a portion of the waste stream to a treatment vessel for treatment comprising contact with a first biological population having a first-biological population profile;

   b.   drawing off a portion of the waste stream to an off-line treatment area;

   c.   controlling the drawn-off portion of the waste stream so as to maintain, in the drawn-off portion, a second biological population having a second-biological population profile different from the first-biological population profile, whereby the second-biological population profile is customized ~~The method of claim 1 wherein the second-biological population profile is customized~~ using a sequencing of growth conditions to provide a particular biological profile; and

   d.   returning a fraction of the drawn-off portion to the treatment vessel following contact with the second biological population, the returned fraction including a portion of the second biological population.

57.   (Previously Presented) The method of claim 56 wherein the sequencing of growth conditions includes mixing the waste stream with activated sludge followed by one or more of controlled mixing, air exposure, residence time, and settling sequences.

58-59. (Cancelled)

60.   (New) The method of claim 56 wherein the second biological population exhibits a lower solids yield and a higher waste-digestion efficiency relative to the first biological population.

61.   (New) The method of claim 56 wherein the second biological population includes a higher proportion of facultative aerobes than the first biological population .

62.   (New) The method of claim 56 wherein the second biological population includes a higher proportion of facultative anaerobes than the first biological population.

63.   (New) The method of claim 56 wherein the second biological population includes a higher proportion of nitrifiers than the first biological population.

64.   (New) The method of claim 56 wherein the second biological population includes a lower proportion of filamentous biology than the first biological population.

65.   (New) The method of claim 56 wherein the second biological population inhibits the formation of filamentous biology more than the first biological population.

66.   (New) The method of claim 56 wherein the returned fraction contains a higher level of biological nutrients than the waste stream.

67.   (New) The method of claim 56 wherein the returned fraction contains a higher level of cBOD than the waste stream.

68.   (New) The method of claim 56 wherein the returned fraction contains a higher level of nitrates than the waste stream.

69.   (New) The method of claim 56 wherein control of the drawn-off portion is effected through maintenance of a target ORP range.

70.   (New) The method of claim 56 wherein control of the drawn-off portion is effected through maintenance of a target specific oxygen uptake rate range.

71.   (New) The method of claim 56 wherein control of the drawn-off portion is effected through maintenance of a target specific nitrate uptake rate range.

72.   (New) The method of claim 56 wherein the treatment vessel contains disposable solids, introducing the returned fraction to the treatment vessel causing the disposable solids to increase in concentration at the expense of biology.

73.   (New) The method of claim 56 wherein the treatment vessel contains disposable solids, introducing the returned fraction to the treatment vessel causing the disposable solids to decrease in nutrient content.